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ABSTRACT

This paper examines the distribution of economic well-being from 1980 to 1984, and compares economic changes during that period with those of other periods. The following indicators of economic change are used: (1) money income consistent with a Census definition; (2) money income net of direct taxes--i.e., disposable income; and (3) disposable income plus government in-kind transfers. It was found that the period 1980 to 1984 differs from earlier periods by displaying an accelerated trend to greater inequality. Gains achieved by those at the top of the income distribution are more attributable to a redistribution of resources than to economic growth. These results are borne out regardless of the measure of economic status or the unit of observation chosen. Benefits went disproportionately to those at the top of the distribution of resources, and burdens fell disproportionately on those with lower incomes. A breakdown of the 1980 to 1984 period into periods before and after 1982 suggests that the recession has been more disequalizing than the recovery. But the recovery did not reverse the trend, only mitigated it. Data are presented on eight tables. Appendices present the results of a microsimulation model and analyze inflators. (BJV)

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CHANGING DOMESTIC PRIORITIES

DISCUSSION PAPER

MEASURING CHANGES IN ECONOMIC WELL-BEING

by

Marilyn Moon

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MEASURING CHANGES IN ECONOMIC WELL-BEING

by

Marilyn Moon

July 1985

Randall Webb, Douglas Murray, and Margaret Moore were responsible for the computer work without which this paper would not have been possible.

This paper is a product of the Changing Domestic Priorities project which is examining the shifts that are occurring in the nation's economic and social policies under the Reagan administration. Funding for this multiyear study was provided by a consortium of foundations and corporations, principally The Ford Foundation and the John D. and Catherine T. MacArthur Foundation. Support for this paper was provided by the Carnegie Foundation.

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One test of fiscal and economic policies affecting our economy is how the impacts of those changes are spread across the population--that is, how the burdens or benefits of economic decline or growth are shared. Over any period of time, many forces are at work affecting the distribution of economic well-being. Although a priori, it is difficult to predict exactly how these changes will interact, the first four years of this decade nonetheless constitute a period likely to have resulted in a distributional realignment of families and individuals. Inflation fell consistently between 1980 and 1984, a major recession followed by a strong early recovery took place, and a number of major tax and expenditure policy changes occurred at the federal level. Any one of these changes might have an impact; together they almost surely would lead to differential effects on families' well-being.

This paper does not attempt to assign credit or blame for any changes that may have occurred, but rather directly ask what has happened to the distribution of economic well-being and how do changes between 1980 and 1984 differ from those of other comparable periods? Ultimately, such redistribution is likely to be weighed--along with other impacts on the American public and the long-run health of the economy--in evaluating the wisdom of various policy changes and the importance of exogenous shocks to the economy.

But before attempting to measure changes in the distribution of well-being, two definitional questions need to be confronted: first, what resources should be included in a measure of economic well-being and, second, how should we define the unit of observation for such a study? Findings about the distribution of well-being may vary depending upon these definitions. For

instance, the benefits of the tax reductions in 1981 might cause after-tax measures to show greater increases in well-being than before-tax indicators would. Moreover, changes in family size over time affect the results if per-family measures rather than per-capita ones are used. These two definitional factors may also affect the distribution of any gains if various resources or household sizes are not evenly spread across the population.

Since so many different adjustments and types of measures are possible, will the basic answer to the question of what has happened to the distribution of well-being in the last four years be unclear? Are different trends likely to emerge, suggesting that the story is not as compelling as when based on only one carefully chosen measure? The simple conclusion in this paper is that the basic results are not sensitive, and that the trend to greater inequality holds regardless of the measures used. Comparisons across these measures do, however, highlight some interesting nuances that add depth to the basic story.

Developing a Measure of Well-Being

The decision of what resources to include in a measure of well-being for this analysis requires a balancing of theoretical and practical issues. Rather than relying solely on money income, economists are beginning to ask what is the appropriate definition of income? Should it be a before-tax or after-tax measure? Should receipt of income in kind be included? Economic theory can offer some insights into this debate. In addition, the enormous data problems involved in empirical studies of necessity influence the direction and comprehensiveness of research. But equally important, any measure of well-being will be shaped by the issue it is designed to address.

A measure of economic welfare can theoretically include almost anything that enhances an individual's (or family's) sense of well-being. Moreover, since satisfaction of various wants and needs depends upon personal attitudes, no absolute level of well-being can be compared across individuals. Intensity of feelings cannot be measured in a way to enable comparative evaluations. This is not fully a counsel of despair, however, for there is one dimension that is quantifiable--what economists call the "resource constraint." This constraint is a measure of all the resources available to the unit at some point in time that increases individuals' ability to consume goods and services. It is this ability to consume goods and services that in turn creates economic welfare.

The definition of resources is, to some extent, limited only by one's imagination of what provides satisfaction to individuals. In addition to traditional measures of income, this could include the availability of leisure time, access to nonmoney resources, or even the presence of clean air. Specific possibilities often mentioned for expansion of the resource constraint include an annualized measure of the stock of wealth owned by an individual, fringe benefits such as health insurance, government or private noncash transfers, and net government goods and services available to consumers.

The components suggested here are often not directly comparable to money income, however. For example, the in-kind components--from public housing to employer-financed health insurance--do not raise the ability to consume all goods and services. Rather, they directly enable consumption of just one specific good and only indirectly allow more consumption of other items if the subsidized good replaces what otherwise would have been consumed out of unrestricted funds (cash income). This difference implies that $100 of medical

care or housing may not be valued as highly as $100 in cash. The theoretical debate on this issue, which is far from settled, is probably most troublesome for valuing medical benefits received through government or employer-supported programs, in part because of the magnitude of such benefits.[1] A different set of comparability issues arise over the inclusion of wealth. Wealth or net worth constitutes a stock of resources rather than an annual flow. What then is the per period contribution of that stock? Does the holding of wealth itself confer benefits even if the wealth remains unused? Or, in the case of wealth that provides a flow of services (such as an owned home), should we attempt to value those services directly?

Tax liabilities work in an opposite direction, lowering an individual's ability to purchase consumption goods. Of course, this should not be taken to imply that government benefits are worth nothing to many individuals. Indeed, as argued above, transfer benefits certainly enhance individual well-being. Other government expenditures such as for highways or national defense may also contribute to individuals' well-being.[2] If taxes were assessed according to a benefit principle--that is, where persons paid taxes just equal to government benefits received--it would be incorrect to subtract tax liabilities (and it would be unnecessary to add the value of in-kind benefits to incomes) from a measure of economic status. However, since taxes are assessed largely according to some system of ability to pay, the net (after-tax)

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1. For a more complete discussion of this issue, see Timothy Smeeding and Marilyn Moon, "Valuing Government Expenditures: The Case of Medical Care Transfers and Poverty," Review of Income and Wealth, Vol. 26, December 1980, pp. 305-323.

2. Some studies have attempted to measure benefits from all government services and attribute them to individuals or households, however. See, for example, Morgan Reynolds and Eugene Smolensky, Public Expenditures, Taxes and the Distribution of Income: The United States, 1950, 1961, 1970 (New York: Academic Press, 1977).

benefits of all of government become important. A family that pays no taxes but uses the highway system, the public schools, and fire protection, for example, is a net gainer in our society.

Sometimes the theoretical debates on these issues are implicitly settled by practical empirical considerations. Measures of wealth or tax liabilities are generally not directly surveyed, making it difficult to include such potential resources without extraordinary efforts. Hence much of the theoretical debate of these components becomes moot. But The Urban Institute's microsimulation model which is used for this analysis has expanded the feasible set both of government transfer benefits that can be included and of the tax liabilities that can be charged against these resources. Constraints in these two areas are consequently less severe than many previous researchers have faced.

The practical concern here is to develop a measure that captures what most individuals mean when they are asked: "are you better off than you were?" In this context, the more straightforward the measure, the better. The Census definition of money income--or an after-tax ("disposable") income measure--is perhaps best able to fit this requirement. "Income" is normally defined as periodic cash flows into the family, including labor income, interest, rent, and dividends, government cash benefits and other periodic payments such as pensions or alimony. Particularly over a short period of time such as the four year period under study here, for example, individuals are unlikely to include in a "calculation" of their own well-being whether their equity in an owned home had risen or even if the value of their employer-paid health insurance coverage had gone up. These non-income changes, at least in the short run, are unlikely to alter their behavior very

much--unless they have shifted dramatically over time. Thus, exclusion of factors such as wealth and other more esoteric measures are less likely to be an issue here.

For this study, three separate indicators of economic well-being are estimated in an attempt to capture a range of measures:

1. Money income consistent with a Census definition;
2. Money income net of direct taxes--i.e., disposable income; and
3. Disposable income plus certain government in-kind transfers.

Standard money income measures are the most readily available indicator of economic status and, as such, results using this measure can be compared with findings for earlier years.[3] The standard measure for this analysis, however, will be disposable income which subtracts liabilities from the federal personal income and payroll taxes and from state and local income, sales, and property taxes. This measure of economic status allows us to consider the impact of changes in taxes over the period under study as well as shifts in sources of income.

In some instances, an expanded disposable income measure might be preferred since it incorporates important in-kind transfers, but in this analysis the measure is not fully complete and thus is treated here as illustrative of how distributional results might change under such a

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3. The income measures used here include adjustments from the Urban Institute's microsimulation model and should not usually be directly compared with standard Census indicators. Again, see Appendix A for a discussion.

measure. The in-kind transfers included in the expanded measure are food stamps and child nutrition benefits.[4]

The Unit of Observation

The choice of unit of study--families, households, or individuals--can substantially affect the order of magnitude of the results in this analysis. Growth rates of measured well-being will only be the same across these groups if factors such as family size remain unchanged over time.[5] Important demographic changes begun in the 1960s and 1970s have continued over the 1980 to 1984 period, however, affecting the statistical relationships among families, households, and individuals. Two major continuing trends will particularly influence the sensitivity of the analysis to the unit of observation: changes in family size and changes in the number and characteristics of unrelated individuals. Average family size has been dropping since 1960, with a particularly rapid decline through the 1970s and early 1980s. Over the period of this study, average family size will have gone from 3.25 to 3.15, meaning that the number of families is rising faster than the number of individuals.

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4. The value of government medical transfers--Medicare and Medicaid--has not been incorporated in the measure of economic status. First, estimates are not now available on the value of employer-paid health insurance, and to include only Medicare and Medicaid and not health fringe benefits would bias the distribution by excluding this higher family counterpart measure. Moreover, to dramatically raise incomes of groups who have high medical costs (such as the elderly) implicitly means that the sicker your group, the better off you are. Medicare and Medicaid certainly contribute to the well-being of their recipients, but much care is needed in attributing these benefits to a measure of well-being. Their exclusion will affect the level of overall well-being--particularly for the elderly--but not have much impact on changes in well-being between 1980 and 1984. (This would particularly hold true if they were adjusted for the higher rates of medical care inflation over the period.)

5. Moreover, the relative economic status of population subgroups would also be affected by the unit chosen, since family and household sizes vary among different types of groups. In this case, adjustments for unit size may be appropriate if either families or households are chosen as the unit of analysis.

Consequently, allocating income across families will indicate slower rates of growth than if such income is divided across individuals. And although such a change does not seem large at first glance, it can have a dramatic effect on the reported growth rates of income. For example, a family growth rate of 4 percent in this instance would translate into a per capita figure of 7.3 percent, almost twice as large.

A second important demographic pattern is occurring through changes involving unrelated individuals. These households, comprised of only one individual, are not included when families only are studied. Unrelated individuals account for 13 percent of the noninstitutionalized population. And, over the 1980 to 1984 period, this group has also been rising at a faster rate than the general population. Moreover, the types of persons residing as unrelated individuals have also been changing--the proportion of working age men has been increasing steadily. In part because of these changes, incomes of unrelated individuals have been rising faster than those of families (even when family incomes are measured on a per capita basis). Consequently, the rate of change in household incomes between 1980 and 1984 would be somewhere between the rates of growth in family and unrelated individual incomes.

These demographic changes illustrate why the results will vary depending upon the unit of analysis, but do not address the question of which measure is the most appropriate for this study.

Equivalence Adjustments for Family Size. If the family is chosen as the relevant unit, some adjustments might be appropriate to account for differences in family size; and if families and unrelated individuals are combined to look at all households, the problem is the same but on an even greater scale. Such "equivalence" adjustments are generally based on how much

additional income families of larger sizes would need to attain equal amounts of individual consumption as compared to smaller families. Equivalence measures generally recognize that, while two may not live as cheaply as one, a couple may live more cheaply than two individuals each living alone.

Equivalence scales help in some comparisons of well-being, but in other cases may replace one set of value judgments with another. While not as extreme as per capita measures, they implicitly make family-based measures more sensitive to the number of family members. For instance, a simple comparison of growth in family incomes would indicate, all other things unchanged, that the break-up of large families into smaller units would reduce average economic well-being. Such reductions in family size may, however, reflect circumstances where elderly family members are now able to afford to live alone--a rise, not a decline, in well-being. In this case, equivalence adjustments would reduce that downward bias. On the other hand, equivalence adjustments may themselves be viewed as increasing bias by implicitly treating the birth of a child as a reduction in economic well-being. In this context, family size may be more appropriately viewed as part of the consumption choice; different "needs" would be considered part of the decision about how to divide the available resources.

The theoretical and empirical techniques for calculating equivalence scales have also been subject to considerable controversy. One of the most common approaches (based on calculating a series of demand equations) yields estimates that are a function of the level of income. Groups that may be alike in terms of family size and age of members can result in a different equivalence value if their incomes differ. Such scales thus do not merely reflect "needs" but also capture <u>ability</u> to purchase goods and services,

causing unwanted distortions in comparisons across families. For example, in one study elderly women end up with lower equivalence scales than elderly men--a finding that may largely reflect their lower incomes.[6] Even simple measures based on the absolute costs of providing goods and services may also be troublesome for making comparisons among families at varying levels of income. For example, basic transportation needs vary considerably depending upon whether the analysis is based on public transportation costs or the expenses of operating an automobile.

Choosing the Unit of Analysis. In general, this analysis will concentrate on the family as the main unit of observation, with no equivalence adjustments. Economic theory generally assumes, for example, that decisions on economic well-being are made as a family unit rather than treating persons as individually seeking their own well-being. That is, the family generally receives income and makes expenditure decisions as a unit. Moreover by this reasoning, households are too inclusive since they can contain several families or unrelated individuals, who are likely to be making separate decisions concerning economic status. And for practical purposes, combining families and unrelated individuals increases the need to adjust for family size. Data on unrelated individuals will be presented separately, recognizing important differences in these two types of households.

To illustrate the sensitivity of the results to the unit and to equivalence adjustments, several alternative measures will also be considered. Three additional "adjusted unit" measures are presented:

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6. Sheldon Danziger, Jacques van der Gaag, Eugene Smolensky, and Michael Taussig, "Income Transfers and the Economic Status of the Elderly," in Marilyn Moon (ed.) Economic Transfers in the United States (Chicago: University of Chicago Press, 1984), pp. 239-276.

- o per capita family income;
- o per capita household income; and
- o family income adjusted for equivalence by Census poverty definitions.

The two per capita measures differ because in the household version, unrelated individuals are included as well as families. As discussed above, the development of a sensitive equivalence measure is a difficult process and since it is not the main focus of this analysis, poverty thresholds for different family sizes and types are used here as the basis for an equivalence adjustment to provide a simple illustrative example. That is, incomes are multiplied by the ratio of the poverty threshold for the specific family based on its size and composition to the poverty threshold for a family of four. This standardization procedure should crudely adjust for differences across family size in the costs of achieving a subsistence level budget.

Changes in Average Incomes

Between 1980 and 1984, the level of real disposable incomes per family will have increased by about 4 percent on average, a small change by historical standards.[7] This reflects largely the fact that incomes plummeted between

7. The figures used here for 1984 are based on a simulation of incomes for that year using the Urban Institute microsimulation model. Although we now know actual growth in aggregate measures such as Gross National Product (GNP), income figures on a family or individual basis are not yet available. Consequently, we simulated 1984 data from 1982 information using aggregate data through April of 1984 (when these simulations were first undertaken). With the virtue of hindsight, we now know that our 1984 overall estimates were too low. For instance, we projected an unemployment rate of 7.6 percent, but the average was actually 7.4 percent for the year. Moreover, GNP grew more rapidly in the last half of 1984 than predicted, resulting in annual real growth of 6.8 percent in 1984 as compared to our estimate of 5.5 percent. This leads us to believe that family disposable incomes have risen by about 4.3 percent--as compared to the 3.5 percent estimated here. Since we cannot

1979 and 1982, and then began to rise dramatically from 1982 to 1984. The 1981-82 recession dealt a severe blow to incomes of families and unrelated individuals. Although recovery in the following two years has restored incomes to levels above their 1980 amounts (in inflation-adjusted dollars), the average family income level is just slightly ahead of its 1979 peak.[8] Thus, even rapid recovery has not had a dramatic impact on raising family well-being when considered over a four or five year period and this trend holds true whatever definition of income is used. Figure 1 shows the levels of average disposable incomes of families for the 1980 to 1984 period. Average family income for 1979--the previous peak in real incomes--is also included in the figure. The overall growth rate for the four years beginning in 1980 in the simulations was 3.6 percent. On a pretax basis, the average would be a slightly higher 4 percent. Even with the income tax reductions in 1981, the total tax bite has risen faster than family income since 1980. If some of the in-kind transfer programs are included--in this case food stamp and child nutrition benefits--the growth rate is lower (3.4 percent) reflecting some of the cuts in these programs.

This growth rate picture brightens somewhat if viewed on a per capita family income basis. As discussed above, family size is continuing to decline--part of a long secular trend--so that even a small decline in family size means that per capita growth will be more rapid than rates calculated on

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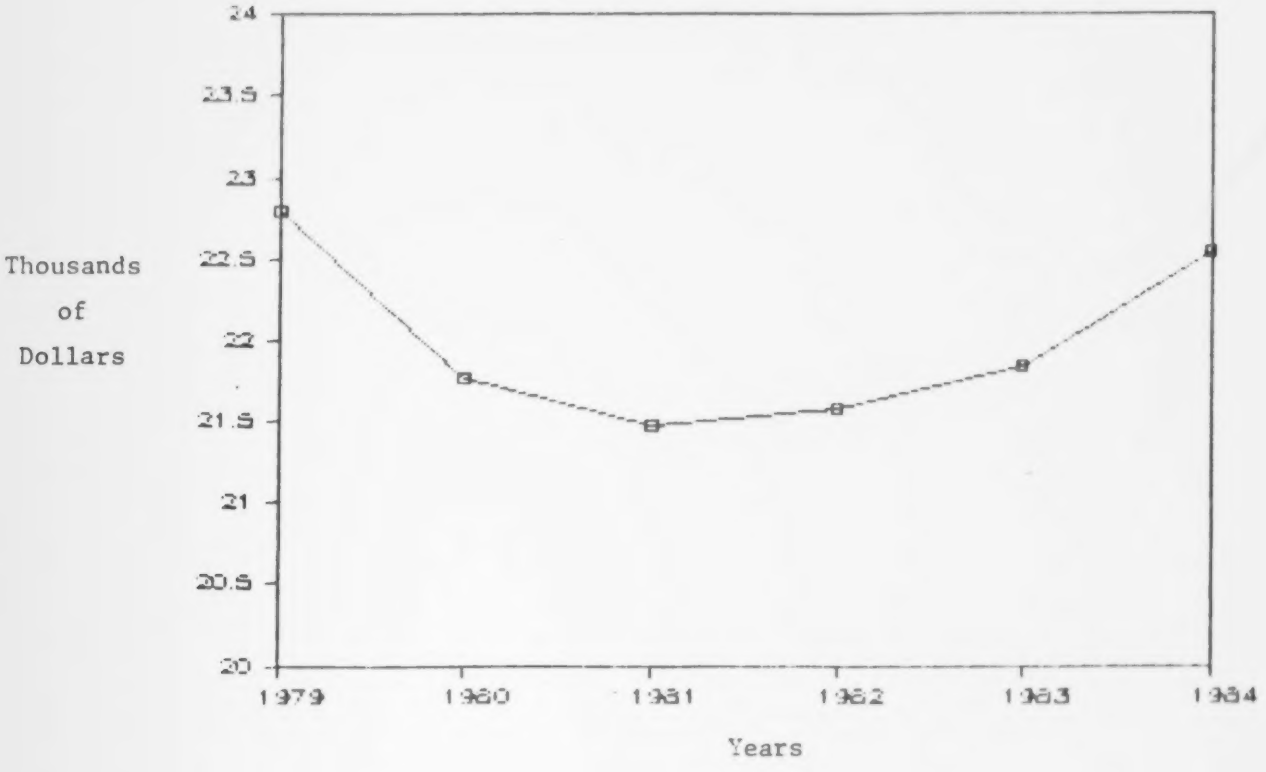
reasonably adjust all the distributional amounts upward, we will continue to use the 3.5 percent figure here, recognizing that it understates somewhat the growth that will have occurred in family incomes. Appendix A discusses in more detail the simulation techniques used.

8. The adjustments used for inflation throughout this volume are the personal consumption expenditure fixed price index for the years before 1980 and for 1980 to 1984, the consumer price index (which has been adjusted for the housing bias that caused it to be of concern in the 1970s). Further discussion of these indices can be found in Appendix B.

FIGURE 1

AVERAGE DISPOSABLE INCOMES FOR FAMILIES, 1979-1984
(in 1984 dollars)



a per family basis. In the case of these estimates, the rate would be 7.3 percent over four years for pre-tax incomes and 6.7 percent if income is calculated after taxes.

For unrelated individuals, the projected income growth rates between 1980 and 1984 are considerably higher than for families--8.9 percent for gross income and 9.5 percent for disposable. The growth rate of income has been faster than the rate of increase in taxes for unrelated individuals, in contrast to the family figures. As already indicated, the composition of this group has been changing rapidly, with more prime age men being classified as unrelated individuals. The higher incomes of prime age men have acted to pull up the average from the incomes of men and women at both extremes of the age distribution who are often thought to dominate this category. And although women do predominate among elderly unrelated individuals, often with low overall incomes; their incomes also rose rather rapidly on average over this period, largely reflecting trends in Social Security benefits.

Changes in the Distribution of Incomes, 1980-1984

To examine how families at different levels of income have fared, this paper looks at population quintiles. That is, families are ranked from lowest to highest incomes and divided into five groups of equal size. If all families had equal real disposable incomes, each one-fifth of the population would have one-fifth of the income. As it was, in 1980 the bottom quintile received 6.8 percent of total disposable income, and the top quintile received 37.0 percent. Disposable incomes to those in the highest quintile averaged more than 5 times higher than those at the bottom of the distribution.

Generally, shares of income received by each quintile change only very slowly over time. A variation of only one or two tenths of a percentage point

represents substantial movement, and in aggregate terms even such small proportional amounts are impressive. In contrast, however, the 1980 to 1984 period has been marked by a larger than average change toward greater inequality in the distribution of family incomes. The shares of income received by the lowest 60 percent of families (the bottom 3 quintiles) will have declined while that of the highest income group will have risen (see Table 1). Only the fourth quintile's share remained unchanged. Thus, while the size of the pie has gotten larger overall, even more importantly, the slices of the pie have also changed. Disposable incomes in the highest quintile will have risen by about $3,525 on average between 1980 and 1984--$1,400 of this amount reflects the overall average growth in family incomes, while the remaining $2,125 represents a shift of resources away from lower income families. It is the redistribution of incomes that accounts for three-fifths of the gain to this highest income group. And when viewed in the aggregate, these redistributional amounts represent large absolute shifts of resources. For example, the redistributional gains by the top quintile will have amounted to about $27 billion in 1984.

This combination of overall income growth and redistribution of resources means that average incomes have risen for families in the top three quintiles (see Figure 2). But in each case the average is lower, the lower the quintile. For families in the middle category--who might be viewed as "typical" middle class families--disposable income rose from $20,296 to $20,505, or only about 1 percent.[9] Thus, most of the growth in family incomes was concentrated among

9. These figures are more representative than the overall averages which are disproportionately affected by high income families. The usual approach to this problem would be to use median income, but since some of the analyses require means, that measure is used to ensure greater consistency.

TABLE 1

REAL DISPOSABLE INCOME BY QUINTILE FOR FAMILIES,
1980 AND 1984
(1984 dollars)

Quintile	1980		1984 Projections	
	Average Disposable Income	Percentage Share	Average Disposable Income	Percentage Share
Bottom	6,875	6.3	6,238	5.5
Second	14,323	13.2	14,112	12.5
Third	20,296	18.6	20,505	18.2
Fourth	26,811	24.6	27,722	24.6
Top	40,530	37.2	44,055	39.1
All Families	21,766	100.0	22,543	100.0

Source: Urban Institute household income model.

FIGURE 2

PERCENTAGE CHANGE IN REAL DISPOSABLE INCOME
FOR FAMILIES, 1980-1984

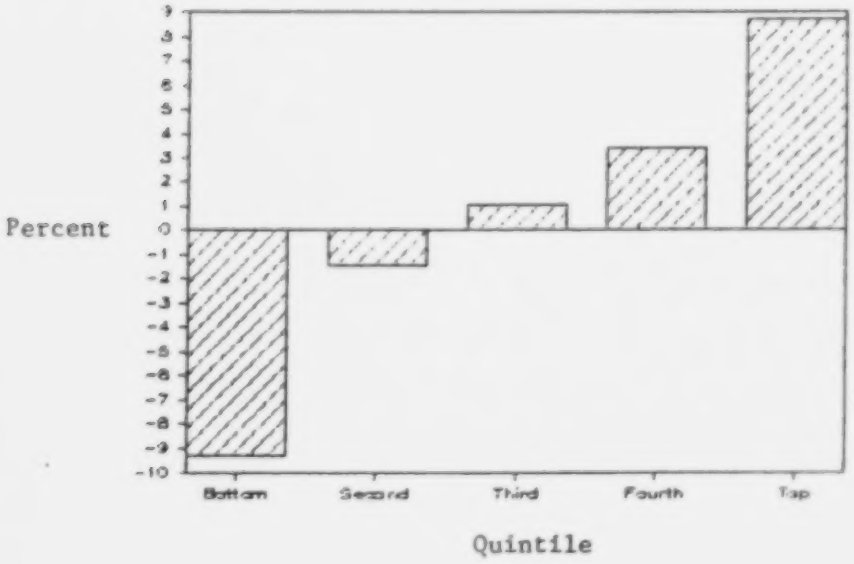
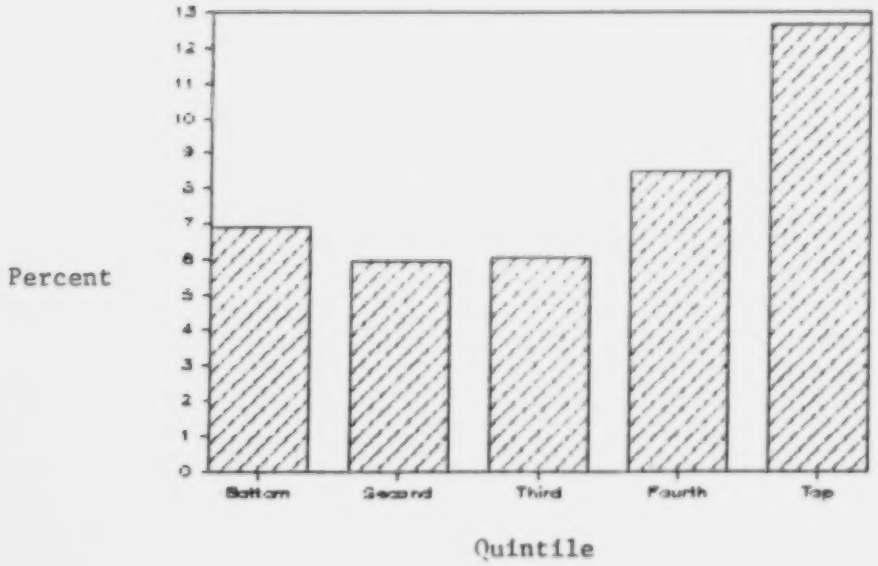


FIGURE 3

PERCENTAGE CHANGE IN REAL DISPOSABLE INCOME
FOR UNRELATED INDIVIDUALS, 1980-1984



higher income families--but note that the after tax income cutoff for the top 40 percent of the families was only $23,539 in 1984 (and $32,269 for the top 20 percent). On average, the lowest 40 percent of all families did not experience higher incomes (after adjusting for inflation) than in 1980. Disposable incomes going to the bottom quintile will have declined by more than 9 percent--or $637--between 1980 and 1984. If the share to the bottom quintile had stayed constant, income to this group would have risen by $226.

Reflecting the higher overall average increases in disposable income for unrelated individuals, all quintiles for this group showed increases in income. But, the pattern of greater growth--and consequently an increasing share of income--for the highest quintile holds for these individuals as well (see Figure 3). The lower four quintiles shared relatively evenly in the redistributional losses in terms of income shares. Disposable incomes rose by 6.9 percent in the lowest quintile, but by only 6 percent in the next two quintiles. Overall, only the highest income group had larger than average increases--totalling 12.7 percent--and the share of disposable income to those in the top quintile rose by 1.2 percentage points (see Table 2). Thus, while these changes were somewhat less redistributive than for families, inequality in the distribution of disposable income did increase for unrelated individuals over the period as well.

Pretax Incomes. The overall picture that emerges from changes in the distribution of pretax incomes varies only slightly from the disposable income story. Again, changes in the shares of income account for a larger portion of what happens to average incomes for various groups than does overall growth. And, as was the case with disposable incomes, the rate of growth of income increases steadly with the level of initial income. But just as the overall

TABLE 2

REAL DISPOSABLE INCOME BY QUINTILE
FOR UNRELATED INDIVIDUALS, 1980 AND 1984
(1984 dollars)

Quintile	1980		1984 Projections	
	Average Disposable Income	Percentage Share	Average Disposable Income	Percentage Share
Bottom	2,324	4.6	2,484	4.5
Second	5,485	10.8	5,812	10.4
Third	8,657	17.0	9,180	16.4
Fourth	12,760	25.0	13,839	24.8
Top	21,757	42.7	24,310	43.9
All Unrelated Individuals	10,197	100.0	11,164	100.0

Source: Urban Institute household income model.

average change varies, so does the order of magnitude of the quintile changes (as shown in Table 3). Differences in income growth vary less on a pretax basis between the bottom and top quintiles than when an after tax measure is used. Analysis based on a pretax measure thus shows less redistribution of income over the period, implying that the impact of all taxes exacerbated increases in income inequality between 1980 and 1984. Although taxes in general in the United States have traditionally been only slightly progressive, the changes between 1980 and 1984 reduced this progressivity.[10]

Somewhat surprisingly, the most important proportional difference between the two measures occurs for those in the lowest quintiles. For those at the bottom, the drop in income is much less on a pretax basis (6.2 percent) than on a disposable income measure (9.3 percent). Tax burdens rose rather dramatically for this group. In contrast, although taxes paid by those at the highest income level also rose, the share they paid changed little. Thus, increases in the burdens of taxes were greater on low income families than on those in higher quintiles, so that the overall impact of taxes was to increase the inequality of the income distribution for families. Part of this increase reflects the rising importance of the payroll tax which falls more heavily on low income families than does the income tax. But the income tax is also a factor and these findings are consistent with analysis by others citing the distribution of gains from the 1981 income tax cuts.[11]

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10. For an interesting analysis of the overall progressivity of the income tax structure see Joseph Pechman, Who Paid the Taxes, 1966-1985? Washington: The Brookings Institution, 1985.

11. See, for example, Congressional Budget Office, Effects of Tax and Benefit Reductions Enacted in 1981 for Households in Different Income Categories. Special Study, 1982.

TABLE 3

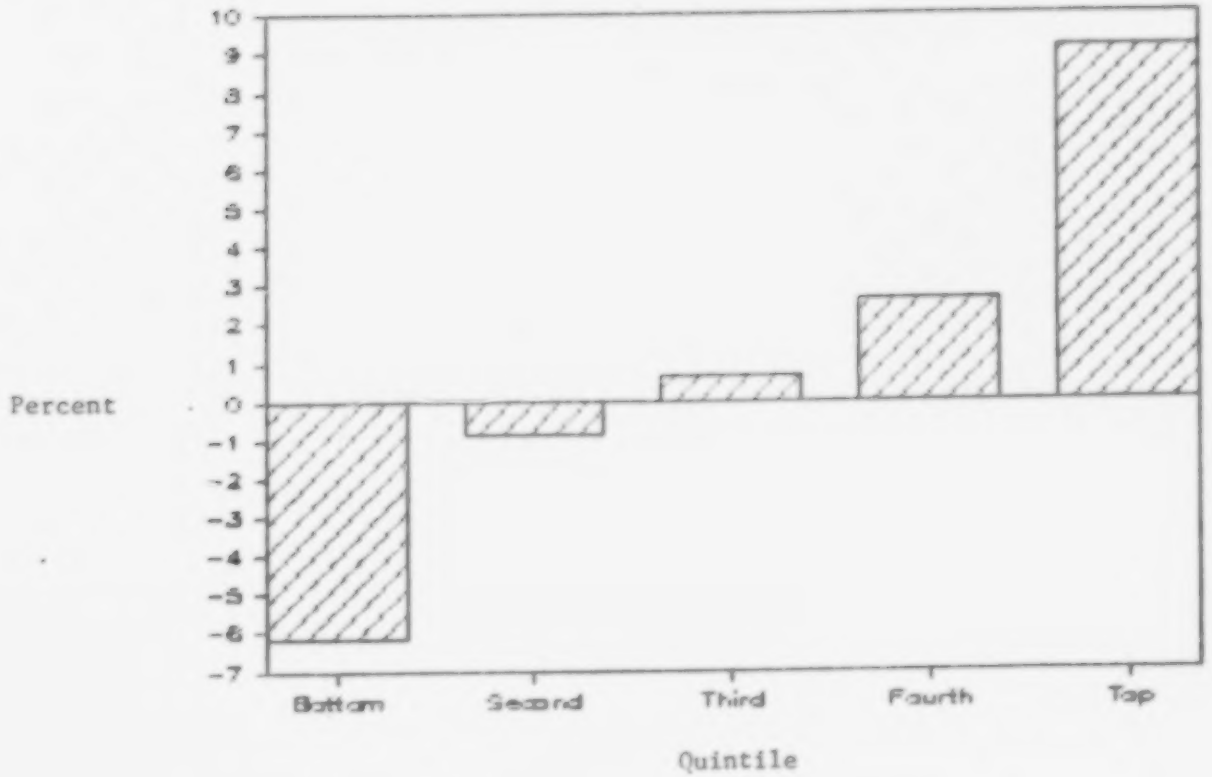
REAL PRETAX INCOME BY QUINTILE FOR FAMILIES,
1980 AND 1984
(1984 dollars)

Quintile	1980		1984 Projections	
	Average Disposable Income	Percentage Share	Average Disposable Income	Percentage Share
Bottom	8,329	5.6	7,814	5.1
Second	17,297	11.7	17,147	11.1
Third	26,166	17.7	26,337	17.1
Fourth	36,395	24.6	37,343	24.3
Top	59,670	40.4	65,157	42.4
All Families	29,573	100.0	30,760	100.0

Source: Urban Institute household income model.

FIGURE 4

PERCENTAGE CHANGE IN REAL PRE-TAX INCOME
FOR FAMILIES, 1980-1984



Sensitivity to the Measure and Unit of Observation

In addition to pretax incomes, changes in well-being between 1980 and 1984 can be calculated for adjusted disposable incomes (to which food stamp and child nutrition benefits have been added) and different units of observation when disposable income is the measure (see Table 4). Since the overall growth rates from these different measures vary, it is also reasonable to expect the per quintile rates to differ. One common trend holds throughout, however; that is, those in the bottom quintile are always losers and in each succeeding quintile, income changes become more favorable.

When using a family per capita measure as the unit of observation, the overall income growth rates are higher since family size has risen faster than the number of persons per family. This is to be expected because the number of families has grown at a faster rate than the number of individuals since 1980. The equivalence measure displays much the same pattern as for the per capita indicator, but with slightly more favorable results for the bottom three quintiles. As discussed above, the equivalence measure represents a compromise between the per capita and per family approaches, but as shown here, it is closer to the per capita results.

The adjusted disposable income measure also displays some interesting differences from the others. While only food stamp and child nutrition benefits are added to this expanded measure, these programs--which account for just about 1 percent of total disposal income--nonetheless change the growth rates as compared to disposable income (on a per family basis) for the lower two quintiles.[12] Although both these programs suffered budget reductions

12. Ideally, other in-kind benefits, particularly housing assistance, would also be included. Unfortunately this TRIM2 module is still at an undeveloped stage.

TABLE 4

CHANGE IN FAMILY WELL-BEING 1980-84
BY QUINTILES FOR ALTERNATIVE DEFINITIONS[a]

Measure and Unit Disposable Income	Quintile					All Families
	Bottom	Second	Third	Fourth	Top	
Disposable income						
Per family	- 9.3	- 1.5	+ 1.0	+ 3.4	+ 8.7	+ 3.6
Family per capita	- 5.5	+ 0.1	+3.6	+ 5.6	+ 10.6	+ 6.7
Family equivalence	- 5.3	+ 0.7	+ 4.0	+ 5.2	+ 10.8	+ 6.4
Pretax income per family	- 6.2	- 0.9	+ 0.7	+ 2.6	+ 9.2	+ 4.0
Adjusted disposable income Per family[b]	- 7.1	- 1.8	+ 0.8	+ 3.3	+ 8.6	+ 3.4

Source: Urban Institute household income model.

a. Figures for 1984 are projections.

b. The adjusted disposable measure includes the value of food stamp and child nutrition benefits.

between 1980 and 1984, they nonetheless help mitigate losses in disposable income for the poorest families. Much of the loss in income to those in the bottom quintile between 1980 and 1984 stems from unemployment. Welfare programs are by their nature designed to help replace some of this loss and they "automatically" rise as the economy worsens. Even with the cuts in the programs that occurred after 1980, such replacement of income has continued, although at a lower level than would have been the case under pre-1981 rules. That is, earned income losses were so severe that the "automatic" increases in spending that were triggered kep "ahead" of the budget cuts.

For those in the second quintile, where the budget cuts were more heavily targeted, the story is different, however. When the benefits from food stamps and child nutrition are added to disposable incomes in both years, the 1980-84 loss is greater. The cuts in in-kind benefits for these families were large enough so that they swamped the "automatic" rise in benefits from higher unemployment. Again, these results are consistent with the nature of the legislated changes in the programs that tended to reduce benefits for families with some earnings rather than the poorest beneficiaries.

The significance of these results from these alternative measurement approaches stem not from their differences but from the similarities in the pattern of gains and losses across each distribution. For example, per capita income gains are much higher on average than the family measures, but the bottom quintile still loses absolutely and, comparatively, the losses are of the same relative magnitude as for the other measures. The consistency of these patterns underscores the robustness of the results. Definitions of unit size do not change the overall results.

The Effect of the Recession on Distributional Changes. One of the important sources of change in the distribution of income is likely to be the rate of economic growth. The period 1980 to 1984 captures two distinct stages in the business cycle, each of which might have a differential impact on the distribution of income. Periods of rising unemployment may harm some groups more than others; and recovery may not result in a symmetrical re-employment of laid off workers, for example. To observe such possible differences, the data are divided into two periods: 1980 to 1982 and 1982 to 1984.

Results for 1982 indicate that inequality increased at a much faster pace in the first period than in the second (see Table 5). Only those in the top quintile displayed gains between 1980 and 1982, while most of the loss for those at the bottom occurred during the recession. Nonetheless, the pattern of slower or negative growth for those at the bottom of the distribution with progressively greater gains (or smaller losses) for each higher quintile held for both periods. The recovery (1982 to 1984) slowed but did not reverse this trend.[13] Indeed, the projected growth of the top quintile between 1982 and 1984 is a rate 20 percent higher than for families as a whole, while the lowest income group continued to show a loss in income.

Unless future growth dramatically reverses this pattern, the entire decade will be marked by a strong move towards greater inequality. The share of income to the bottom 20 percent of families will continue to drop unless suddenly the growth rate is at least as high as for those with higher incomes. This would require a reversal of what now seems to be a strong trend. At this

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13. Some of this difference in the two periods may reflect the fact that 1982 is the base year used to project 1984 incomes. Some factors that would affect the rate of increase in inequality cannot be incorporated into the projection, so care must be taken in generalizing from this result. Data from the 1983 CPS does tend to support these results, however.

TABLE 5

AVERAGE DISPOSABLE INCOMES FOR FAMILIES IN 1982
AND PERCENTAGE CHANGES AS COMPARED TO
1980 AND 1984[a]

Quintile	1982 Average Disposable Income (1984 dollars)	1982 Percentage Share	Percentage Change in Income 1980-1982	Percentage Change in Income 1982-1984
Bottom	6,269	5.8	-8.8	-0.5
Second	13,687	12.7	-4.4	+3.1
Third	19,717	18.3	-2.9	+4.0
Fourth	26,505	24.6	-1.1	+4.6
Top	41,740	38.7	+3.0	+5.3
All Families	21,584	100.0	-0.8	+4.4

Source: Urban Institute household income model.

a. Figures for 1984 are projections.

point, the evidence seems to indicate that those initially paying the price for policy changes over the period are not the income groups benefitting from rising incomes after 1982. This particular finding needs to be explored more carefully, especially in tracing the full economic recovery beyond 1984.

An Historical Perspective

The choice of a basis of comparison for the last four years can place this period in either a positive or a negative light. Strong arguments can be made for each of several alternative periods. For example, to emphasize the influence of the Reagan administration as compared to earlier ones, comparable four year intervals could be chosen. The Carter years could be studied by looking at 1976 to 1980; similarly, Eisenhower's administration would yield two periods, 1952 to 1956 and 1956 to 1960.[14] On the other hand, influences beyond the control of any President may also affect the outcomes. Indeed, the two Eisenhower periods would yield different average rates of growth. The stage of the business cycle and important outside (exogenous) shocks to the economy may be more important than any administration's policies. Similarly, if the emphasis is on aggregate economic influences, it might be appropriate to focus on terms of the various Chairmen of the Federal Reserve Board. Certainly, Chairman Volcker has received his share of blame and credit for the state of the economy for the past five years.

Finally, it might be best to use averages of income growth over longer periods to provide more stable points of comparison. But even over 10 years, for example, the results could be sensitive if the end points are unusual

14. Actually, it could be argued that to capture the Carter years, comparisons between 1977 and 1981 would be more appropriate. The years examined here are consistent with the 1980-84 "Reagan years," however.

years. That is, does the decade of the 1970s end in 1979 or 1980? Inclusion of 1980 would lower significantly the average growth rates for the decade.

Recognizing the sensitivity of the comparison measure, several bases will be used here, including the Carter years (the period 1976 to 1980), a comparable period in the business cycle from the 1970s (1974 to 1978), and finally, average growth rates for the 1960s and 1970s. These different periods may offer some insights into the relationship between overall growth and the inequality of its distribution as well.

An additional constraint on any comparison, however, stems from the availability of data. Although Census income before taxes is widely reported, disposable income and disposable income plus in-kind benefits were not routinely measured before 1980.[15] Moreover, when similar measures have been estimated elsewhere (for example, by the Census), they do not always coincide with the techniques used in this volume. The most comprehensive comparisons will thus be made using before-tax incomes; when important, other contrasts will be discussed, although in a less systematic way.[16]

Finally, the unit of measurement also represents an important dimension tnat can vary when making comparisions. As we have seen, income can be reported for households, families, or persons, and in each case, the results are likely to be different over the 1980 to 1984 period. Household formation and changes in the population do not always move in concert, so growth rates

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15. The Census is now reporting disposable income and gross income plus in-kind transfers. The National Income and Product accounts do provide per capita disposable income estimates. Since these use aggregate data and quite different definitions of what constitutes income, however, these data are not useful here.

16. Even here, however, some differences between our pretax income measure and that used by the Bureau of the Census (which is the source which we use for comparisons) also occur. This primarily stems from the fact that our estimates correct income transfers for under-reporting.

for each of these groups may vary over time and consequently mean that changes in income are sensitive to the unit used. The results--particularly overall growth rates--for the 1970s (even more than the 1980s) are sensitive to these demographic changes. Thus, both family and per capita family figures are presented.

Average Growth in Incomes Before Taxes. The decade of the 1960s produced much higher growth in family incomes than the 1970s. During the 1960s, family incomes averaged nearly a 4 percent per year real compound rate of growth. Over a four year period this would result in growth in real pre-tax incomes of 16.8 percent (see Table 6). This very high average rate fell dramatically in the 1970s to a 1.3 percent annual compound rate--or only 5.2 percent over an average four year period.

Average rates over the 1970s also can be misleading for another reason: the decade began with reasonably high real growth, followed by a dramatic decline in incomes during the 1974-75 recession. And again between 1979 and 1980, incomes dropped precipitously. Thus, at different points in the decade, varying growth rate figures would result when looking at any particular four year period. What could be thought of as the Carter years (the period 1976 to 1980) resulted in average per family income growth of only 2.3 percent for the full four years, considerably slower than for the 1980 to 1984 period. This reflects the fact that the Carter years ended on a downswing in economic activity, unlike the 1980-1984 period. If instead, the comparisons are made across more similar points in the business cycle, the figures would be higher

TABLE 6

COMPARATIVE REAL COMPOUND RATES OF
GROWTH IN FAMILY PRE-TAX INCOMES
OVER FOUR-YEAR PERIODS

	Four Year Growth Rate (percents)	
Time Period	Family	Family Per Capita
1960-69[a]	16.8	b
1970-79[a]	5.2	10.7
1974-78	5.5	12.2
1976-80	2.3	6.4
1980-84	4.0 (4.9)[c]	7.3 (9.0)[c]

Sources: Current Population Survey and Urban Institute household income model.

a. Four year average based based on average annual growth rates over the decade.

b. Not available, but the figure would be close to a per family rate

c. As discussed earlier, the figures in parentheses represent updated estimates of the overall rates, while the other 1980-84 figures capture our original projections.

in the 1970s. Pre-tax family incomes rose an average of 5.5 percent between 1974 and 1978.[17]

Using per capita incomes as the basis for comparison, the difference in relative growth rates between the 1960s and 1970s would be reduced. Family size declined greatly in the 1970s, so that on a per capita basis, the income growth is closer to that of the 1960s (where stable family size meant that family and per capita rates would be quite similar). Because of these demographic changes in the 1970s, per capita incomes would have grown by 10.7 percent over a four year period based on the average growth rates for the decade. For 1974-1978, the per capita rates again were about twice as high as on a per family basis. And for the Carter years, the per capita figure is 6.4 percent--nearly three times as great as the per family measure.

The 1980 to 1984 rates (even if updated from our projections to 1984 actuals) lie between the Carter years and the similar business cycle years of the 1970s (1974-1978), but are closer to the latter. It does not matter whether per family or family per capita figures are used, although the Reagan years look slightly better on a per family basis relative to the 1970s when family size fell dramatically. Claims in the recent presidential campaign that well-being had improved more under President Reagan than President Carter are borne out at least on average. The growth rate is more than twice as high on a per family basis. But this growth in the most recent period is not higher than for the 1970s as a whole and certainly nowhere approaching that of the 1960s. For the entire decade of the 1980s to exceed the 1970s, growth

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17. This period bears several similarities to the 1980 to 1984 period, including a major oil price increase shock in the year preceding the period (i.e., 1973 and 1979). For more discussion of this, see Frank Levy and Richard Michel, "The Way We'll Be in 1984," CDP Discussion Paper, The Urban Institute, November 1983.

rates in real family incomes will have to rise by about 7.7 percent over the next five years--or about 1.5 percent per year. This would certainly seem to be an attainable growth rate--although the annual rate of growth of GNP to achieve this would have to be considerably higher, probably in the range of 2.5 percent per year (in real terms).

The Distribution of Pre-Tax Incomes. Equally important to the story about changes in well-being are indicators of how economic growth was distributed among families. Did families at all income levels benefit equally? As discussed earlier, the 1980 to 1984 period was quite redistributive, but how does it compare to earlier periods? Again, for historical perspective, pre-tax income constitutes the main basis for comparisons (see Table 7).

If economic growth benefitted all income groups equally, the shares would remain unchanged over time. Moreover, relatively large differences in rates of income growth are needed to elicit even small shifts in the income shares. For the bottom quintile, the 1960s did represent such a period and the share of incomes to this group grew from 4.8 to 5.4 percent. After reaching a high in 1974, however, this share again began to decline, resulting by 1980 in a loss of about half of the 1960s' relative gains. This does not necessarily mean that average real incomes to the bottom quintile fell over the period--but only that any gains were lower relative to other groups--particularly those in the highest quintile. Indeed, between 1970 and 1980, real income rose slightly--by 1.1 percent--over the 10 year period for the bottom 20 percent of families.[18]

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18. Compare, however, this gain to an 8.3 percent average growth for all families over this period.

TABLE 7

SHARES OF PRE-TAX FAMILY INCOME
BY QUINTILES, 1960-1980
(in percentages)

	Bottom	Second	Third	Fourth	Top
1960	4.8	12.2	17.8	24.0	41.3
1970	5.4	12.2	17.6	23.8	40.9
1974	5.5	12.0	17.5	24.0	41.0
1976	5.4	11.8	17.6	24.1	41.1
1978	5.2	11.6	17.5	24.1	41.5
1980[a]	5.1	11.6	17.5	24.3	41.6

Source: Money Income of Households, Families, and Persons in the United States: 1982, Current Population Reports, Series 10-60, No. 142, U.S. Department of Commerce, February 1984.

a. The results shown here for 1980 differ slightly from the results we present in Table 3 based on the Urban Institute's household income model. The higher shares to low income groups in Table 3 largely reflect adjustments in transfer payments to correct for under-reporting of benefits.

In contrast, the share of the pie going to the top quintile declined through the 1960s until 1972 and then that group recouped their earlier share and more by 1980. In 1980, the share of income to this highest quintile was at its greatest level since 1954. Families in that top quintile had thus gained both absolutely and relative to other families. Real incomes rose by 10.1 percent but only about one fifth of that was due to the increased share of the pie commanded by these families. On average, they could have expected to achieve the across-the-board rate of growth of 8.3 percent for the period anyway. Thus, while redistribution was important, it was not the dominant reason for the increased well-being of this quintile group in the 1970s.

The two specific four year periods in the 1970s singled out for comparison (1974 to 1978 and 1976 to 1980) were both times of increasing pre-tax income inequality. Changes in the shares of income to the bottom and top quintiles were of about similar magnitude, although as Table 8 shows, the slower overall growth between 1976 and 1980 meant that these shifts in income shares occurred more through a decline at the bottom of the income distribution than through increases at the top.[19] More importantly, this decline in 1976-80 to those at the bottom was less than half as great as that affecting families from 1980 to 1984 even though <u>overall</u> growth under the Carter years was <u>slower</u>. And at the top of the distribution, the increase in income from 1974 to 1978 was lower than in 1980 to 1984, even though the <u>overall</u> growth in the earlier period was <u>higher</u>. This table thus graphically illustrates the dramatic acceleration in redistribution which occurred in the 1980 to 1984

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19. Although our income share estimates differ somewhat from the Census, differences in the <u>growth</u> in incomes should be reasonably comparable. That is, the corrections we make for under-reporting of government transfer incomes should not themselves affect the rate of change over time to any great degree.

TABLE 8

PERCENTAGE CHANGE IN PRETAX INCOMES
FOR FAMILIES BY QUINTILES FOR
SELECTED PERIODS

Period	Quintile					All Families
	Bottom	Second	Third	Fourth	Top	
1974-78	- 0.3%	+ 2.0%	+ 5.5%	+ 5.9%	+ 6.8%	+ 5.5%
1976-80	- 2.5	+ 1.5	+ 2.7	+ 4.1	+ 3.6	+ 2.3
1980-84[a]	- 6.2	- 0.9	+ 0.7	+ 2.6	+ 9.2	+ 4.0

Source: Money Income of Household, Families and Persons in the U.S., Current Population Reports and Urban Institute household income model.

a. Figures for 1984 are projections.

period.[20] While inequality was increasing in earlier periods, the rate of economic growth played a larger role in income changes relative to changes in the share of the pie. Between 1980 and 1984, however, just the opposite occurred. For this most recent period, more of the income growth at the top of the income distribution is attributable to an increasing distributional share of total incomes than to overall growth.

Changes in After-Tax Income. In a recent study comparing 1974 and 1980, the Census has calculated average after tax incomes for various population groups. Adjusting these figures for the inflation index used in this study results in a decline in per family incomes of 0.4 percent over the period, and a 4.2 percent per capita gain. Taxes were consuming an increasing share of family incomes over the period resulting in slower growth in disposable than pre-tax incomes. The taxes included in the Census study (income, payroll and property taxes) rose as a share of pre-tax income from 26.2 percent in 1974 to 29.8 percent in 1980.[21]

Unfortunately, data on the distributional effect of subtracting taxes from income are not available for this period. For the income tax, bracket creep--families moving into higher tax brackets when their incomes rose with

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20. A calculation of similar changes in family incomes over the 1980 to 1983 period is now possible from published Bureau of the Census data as well. These show that overall income would have averaged a decline of .04 percent, while the range would have been a drop of 7.9 percent for the bottom quintile to a 2.6 percent rise at the top. These findings are quite consistent with our 1980 to 1984 estimates.

21. Estimating After-Tax Money Income Distributions Using Data from the March Current Population Survey. Special Studies, Series P-23, No. 126, U.S. Department of Commerce, Bureau of the Census, August 1983, p. 38. The figures in the report are adjusted by the CPI, overstating the rate of inflation over the period. Consequently, figures in the report indicate greater declines in income than reported here. Moreover, the estimates contained here use some different methodological assumptions and exclude sales taxes so that the disposable income measure of the census is not fully comparable with the measure used later in the volume.

inflation--was important in the 1970s and may have had a more deleterious effect on higher income families. Inflation similarly eroded the value of the zero bracket amount and personal exemptions, however--tax provisions that are more important for low and middle income families. Finally, other tax increases such as the payroll tax increases over the period may have been spread across the population in general but with differential impacts across groups such as the elderly who pay little into payroll taxes. Without more data it is not therefore possible to determine whether the impact of taxes in the 1970s were disequalizing--as we have found has occurred between 1980 and 1984--and if so, whether it would change our findings that the 1980s have thus contributed to more redistribution than occurred in any four-year period of the 1970s.

A Summary of the Results

What can be concluded from all these numbers? First, the period 1980 to 1984 differs from earlier periods by displaying an accelerated trend to greater inequality. Increasing inequality certainly began in the mid 1970s, but the rate of change has been of a much greater magnitude since 1980. So far in this decade, gains achieved by those at the top of the income distribution are more attributable to a redistribution of resources than to economic growth--a shift from the importance of overall growth to those at higher income levels found in the 1960s and even the 1970s. For example, between 1980 and 1984 income growth to the top 20 percent of all families proceeded at a pace 50 percent greater than from 1974 to 1978 even though overall income growth was slightly higher in the earlier period. Gains to those at the top of the income distribution have increasingly come at the expense of those in lower income quintiles.

The strength of these results is borne out regardless of the measure of economic status used or the unit of observation chosen. The overall rates of growth do differ--for per capita and pretax indicators, for example--but the pattern of gainers and losers always remains consistent. Benefits went disproportionately to those at the top of the distribution of resources, however measured, and the burdens fell disproportionately on those with lower incomes. Some differences were found in the redistribution of resources depending upon whether taxes and non-cash government benefits were included or excluded. In each case the findings are consistent with what might be expected from the policy changes. Taxes changed so as to increase the inequality of the distribution of well-being over the period. Food stamp and child nutrition benefits reductions hurt those in the second quintile, but had little effect on those with the lowest resources.

In the examples used here, the various measures of economic well-being do affect comparisons of overall rates of growth across time, casting more or less optimistic tones to these changes. For instance, decreasing family size in the 1970s and 1980s results in slower reported growth rates for families than on a per capita basis, so that comparisons with the 1960s, when family size was more stable, are sensitive to the measure used.

A breakdown of the 1980-1984 period into before and after 1982 suggests that the recession has been more disequalizing than the recovery. Rates of growth showed much more variation across quintile groups during the earlier period. But the recovery did not reverse the trend, only mitigated it. Incomes for those at the top of the distribution grew faster than the average, while those at the bottom continued to experience a small decline. Whether further recovery will benefit families with lower than average incomes remains

to be seen. Just to slow the rate of increase in inequality in the 1980s to its lower 1970s trend line would require that future growth disproportionately aid lower income families, at least for some period in the near future. And nothing in these results suggests that that is likely to be the case.

APPENDIX A

THE MICROSIMULATION MODEL

The income estimates presented here for 1980 and 1984 use The Urban Institute's household income microsimulation model (TRIM2) in conjunction with the Current Population Survey (CPS). The microsimulation approach allows us both to supplement and enhance information available on the original Census surveys and to project income for future years, in this case to use 1982 data to estimate incomes for 1984. Most of the analysis uses disposable (after tax) incomes as the standard measure.

Conducted by the Bureau of the Census in March of each year, the Current Population Surveys for March 1981 and March 1983 serve as a basic starting point for the analysis. The survey, which includes a nationally weighted sample of about 60,000 households, asks detailed questions about household composition, sources and levels of income for the previous calendar year, employment and occupation and various demographic characteristics.

The Urban Institute Household Income model adds additional information for five government transfer programs and tax liabilities for five different federal, state, and local taxes. In several instances, such as with the Aid to Families with Dependent Children (AFDC) program, participation and benefits are recalculated for a program included in the CPS survey. In general, however, TRIM2 creates new variables not available on the CPS survey. For example, the tax modules are simulated from scratch, by using income, age, family size, state of residence, and other characteristics to calculate a tax liability for each family. That is, for a family residing in a particular state, we use the rules for that state to calculate taxable income and then

apply the appropriate tax rate to obtain an estimate of state income taxes owed for each family.

Another aspect of this study was to project future income for 1984. To this end, we "aged" the 1982 calendar year data--the latest available. First, Census projections were used to adjust the number, size, and composition of families and households. A second and more difficult task was to adjust each component of family incomes to their 1984 levels. A macroeconomic projection model (in this case that provided by Data Resources, Inc.) provided target aggregate amounts for various types of income and for levels of inflation and unemployment. Consequently, in 1984, families display fewer spells of unemployment and higher average incomes than in 1982. This step creates an estimate of the total level of incomes in the economy and how they are distributed across families and individuals by age, race, and other characteristics.

With the virtue of hindsight, we know that our 1984 projections of real GNP are too low. The administration's forecast for growth in real GNP in 1984--as contained in the President's Budget--was 5.3 percent. This figure was slightly less optimistic than our 5.5 percent forecast made early this spring which served as the basis for the macroeconomic calculations. But, in fact, the economy grew faster than expected in 1984, ultimately resulting in real GNP growth of 6.8 percent. Similarly, the actual average rate of unemployment for the year was 7.4 percent as opposed to our 7.6 percent projection.

How would an upward adjustment in projected GNP growth change the results presented here? The average increase in disposable family income over the period will likely be in the range of 4.3 percent rather than the 3.6 percent

projected in the chapter--not a substantially different result. And for the elderly, the overall rate is likely to rise by a smaller proportion since Social Security income--which will not change much--is so important to this group. There might also be some small differences in the distributional impact as well, although these basic results should also be reliable.

A number of additional caveats are important to observe in interpreting the TRIM2 results. First, any application of TRIM2 will be subject to some of the same problems affecting the data set used as the base--in this case the CPS. For example, although the TRIM2 modules correct for some of the underreporting of income that occurs with the CPS, some problems remain. Since the focus here is on income growth, however, problems of underreporting are also less than if the emphasis were on absolute levels. Second, although 1982 is used as the base for 1984 projections, this is not a longitudinal file. That is, because of the projection technique used, we cannot trace what happens to a <u>particular</u> family over time. Finally, there are limitations on the behavioral changes that TRIM2 will implicitly incorporate. Although this should not be a major problem for 1984 when we have a good idea of what the level of unemployment will be, to project further into the future implies that we know how labor force participation might change in response to tax or other policy changes, to demographic changes, or to other unforeseen events.

Despite these caveats, TRIM2 offers a very powerful analytical tool for evaluating changes in the distribution of income. Perhaps most important, it allows us to look at the interactions among programs, and between the state of the economy and various government programs (or taxes), thus avoiding the limitation of static analyses.

APPENDIX B

INFLATORS

Prior to 1983, the Consumer Price index contained a flaw in computation of housing costs that many felt overstated inflation for the average consumer, particularly during the 1970s when housing costs were rising rapidly. Beginning in 1983 that component of the CPI has been redefined to base housing costs on rental units rather than mortgage costs.

To avoid this overstatement of inflation and to use a consistent CPI measure for the 1980-1984 period, we used the new indicator throughout the period. (This new measure, formerly called the CPI-X, was calculated separately for several years before becoming the replacement measure.)

In cases where comparisons with earlier periods were needed, the CPI-X was not available. Consequently, we used the fixed-weight personal consumption expenditure (pce) inflator from the GNP series, since it is more comparable to the CPI-X than was the CPI. The table below demonstrates how the three sets of inflators compare over various periods. The use of the pce and the CPI-X means that growth rates of income are higher than they would have been if the original CPI were used to calculate inflation-adjusted incomes.

TABLE B.1

COMPARISON OF RATE OF PRICE INCREASES OVER
SELECTED PERIODS MEASURED BY
THREE INFLATORS

Period	Inflator		
	CPI-X	CPI	PCE
1980-1983	19.9	29.0	20.1
1976-1980	N/A	44.8	38.9
1970-1980	N/A	112.2	99.4